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Friendships and Group Work Dynamics in Higher Education: Applying a Critical Case Study Design

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Contributor Biographies

Christoforos Mamas is currently undertaking a 3-year Marie Skłodowska-Curie Fellowship at the University of California, San Diego, and Plymouth University. His research focuses on children's friendships and social acceptance within the context of inclusive education across three countries. Prior to the fellowship, he worked at the Institute of Education, University of Plymouth, as a lecturer in early childhood studies and education. He has also worked as a teacher and educational researcher between 2009 and 2013.

Irene Kaimi took up a lectureship in statistics at Plymouth University in September 2011. Previously, she worked as a visiting lecturer at the University of Cyprus and as a research associate at Lancaster University where she also obtained her PhD. Her research interests include spatial and spatio-temporal methods for environmental and medical applications, time series analysis, and social statistics.

George Michail is an independent educational researcher, software engineer, and a school teacher. He is currently working in a language school in the United Kingdom and as a freelance software developer. George is keen on combining teaching practice and educational research, especially in the field of educational technologies. He had previously worked as an instructor on a teachers' training program on educational technology in the Pedagogical Institute of Cyprus.

Published Articles

Mamas, C. (2017). Exploring peer relationships, friendships and group work dynamics in higher education: Applying social network analysis. *Journal of Further and Higher Education*.

Abstract

This case study offers an account of a small-scale project conducted within a critical case study research design. In particular, it focuses on the challenges and advantages of undertaking such a design. In doing so, we discuss various research practicalities, ethical considerations, the research design in detail, our main method of data collection and elaborate on how the design has been implemented. We conclude with practical lessons learnt and a list of discussion questions. The case is useful for students and early career researchers undertaking educational research in higher education.

Learning Outcomes

By the end of this case, students should be able to

- Gain an understanding of the methodological advantages and limitations when implementing a critical case study design
- Apply a critical case study design when undertaking research in a higher education context or any other appropriate context
- Evaluate the feasibility of possible research designs and methods in higher education research

Case Study

Project Overview and Context

In September 2013, the principal investigator (PI), Cristoforos Mamas, embarked on his first academic teaching job with Plymouth University in the United Kingdom in what is now known as the Institute of Education. Together with the excitement of this new opportunity came many challenges. Teaching students with diverse interests and learning styles in an engaging manner has certainly been a considerable challenge. Perhaps, more importantly, informing his teaching with up-to-date research was another major challenge. Therefore, he sought to find ways of marrying teaching and research. From very early on, he realized that students find it quite hard to maintain friendships and work together in collaborative tasks. Thus, the idea of a research project to examine the friendships and group work dynamics was born. In terms of methodology, the research team then had to decide about the research design, leaning toward an action research type of design or a critical case study design. For a number of reasons that are discussed in this case, we adopted the latter. Irene and George complemented the research team and primarily provided expertise in analyzing the data as well as contributing to building a social network analysis toolkit that was employed in managing and analyzing the social network data of the study.

The principal aim of this study was to apply a critical case study design to explore the link between students' peer relationships and friendships, on one hand, and group work dynamics, on the other. A critical case study design enables a researcher to examine

a well-developed theory, hence a case is chosen on the grounds that it will allow a better understanding of the theory. This small-scale study was undertaken during the academic year 2014-2015. Data collection occurred within the first 6 months of 2015. Participants were undergraduate students from a full-time degree program in England. The duration of most full-time undergraduate programs in the United Kingdom is 3 years, so our study included 3-year groups. In total, 77 students completed a questionnaire out of a possible 155, resulting in a response rate of 49.7%. The questionnaire included social network questions with regards to students' friendships (i.e., who are your friends within your year group?) and group work dynamics (i.e., who do you prefer working with during group work?) as well as closed (i.e., Likert scale type of questions) and open-ended questions (i.e., what do you like most about group work?). The study was driven by two main research questions:

- What is the relationship between friendships, peer social interactions, and group work dynamics in each of the 3-year groups?
- What are the benefits and challenges of group work as perceived by students?

A pivotal aspect of the academic experience of students relates to group work and collaborative learning. The educational benefits of students working cooperatively in groups are well recognized. Group work and student collaboration have been found to promote learning, whereas “social interaction with peers has long been recognized as one of the critical factors for facilitating the learning process” (Gašević, Zouaq, & Janzen, 2013, p. 2). Overall, group work has been shown to improve learning, well-being, and ultimately act as safeguard to students' mental health. However, the relationship between

friendships and group work dynamics in higher education is an area that is relatively under-researched despite the multiple benefits of enhanced social interaction with peers.

Research Practicalities

Even though this study was not bound to any formal funding, it had to be completed by July 2015, as we had committed to presenting the findings to the university and to international conferences after July. The first step was to get together as a research team and decide upon the research problem and particular research questions, methodological approach, timeline, ethical approval, data collection and analysis, and writing up of findings. After this initial step, the research team agreed to meet on a bi-weekly basis to monitor the progress of the study and assign workload to all members. When undertaking collaborative and multidisciplinary research, it is essential to have a good plan and thorough communication strategies. For example, we set up a regular meeting every 2 weeks and created a shared digital folder in which we uploaded all documents related to the study. In what follows, we discuss the main issues we faced while conducting this study.

Ethical Approval

As with any research project, we had to obtain formal ethical approval by the respective university ethics committee. This process took around 8 weeks. We submitted an application which was examined within 4 weeks and received feedback from the committee. We were asked to undertake minor revisions and provide clarifications on different points. We resubmitted the amended application and received formal final

approval for the project within 4 weeks. This process is quite common when undertaking educational research in a higher education institution in the United Kingdom.

A specific ethical challenge was participants' anonymity. According to Steve Borgatti, Martin Everett, and Jeffrey Johnson ([2013](#)), network researchers can only offer confidentiality to respondents and not anonymity. Students were asked to write their names on the questionnaire so we could run social network analysis. "Social network analysis is primarily concerned with network *structure* and *position* of an actor/student within a network" ([Borgatti et al., 2013](#), p. 11). Therefore, we had to guarantee confidentiality to participants and made this point very clear on the ethics proposal. All names of students were replaced by randomly generated numbers and then their real names were deleted. Only the research team had access to the social network data in which a participant could be identified. This was made clear to participants prior to their completing the questionnaire.

Participants

As soon as we had been granted ethical clearance for the project, we started finalizing our strategy of how to recruit as many participants as possible. The population for our research included students pursuing full-time studies within the selected undergraduate program, which was our case study under examination. A recruitment strategy was put into place with several steps. First, we invited the 3-year coordinators to a briefing session about the project. This was an informal meeting with them in which we explained the project, its impact to teaching time, and gave them ample time to ask questions. Second, we identified three teaching sessions, one in each year group, in which we would

invite students to take part in the questionnaire. Third, we talked to the three particular lecturers undertaking those sessions and asked them to allow us 20 min to administer the questionnaire. All three agreed. Fourth, the PI administered the questionnaire to students. The PI spent 5 min introducing the study and then invited students to participate. It was made clear to them that non-participation would have no consequences at all.

We thought a combination of online and on-paper distribution of the questionnaire would have maximized the response rate. However, most of the responses were received through face-to-face distribution of the questionnaire and only seven students completed it online. Of course, on-paper data collection took place first; therefore, this might be the reason for a much higher response rate compared with the online version. As outlined earlier, we collected 77 questionnaires out of a possible 155, which amounts to about 50% response rate.

Questionnaire Design

A questionnaire was the sole data collection method for this study and the designing of it proved to be challenging. It was challenging because we included both quantitative and qualitative questions. Initially, we wanted to collect the data by implementing a stand-alone social network questionnaire to capture friendship and group work nominations and then proceed to interviewing some of the students. However, we decided to drop the interviews and incorporate the interview questions into the questionnaire to give voice to as many students as possible. By incorporating the interview into the questionnaire, we achieved a greater variety of opinions and data. Intentionally, we kept the open-ended questions simple and short, which maximized responses from students. Another reason

for not conducting the interviews was to minimize the impact time of the study. Students were close to the end of the academic year and were extremely busy with assignments, so we aimed to keep their participation time as minimal as possible. To achieve reliability and validity, we piloted the questionnaire and made various changes before data collection, including revising some items and removing one on the Likert scale as well as adding an extra question at the end regarding students' grades.

Therefore, the questionnaire was divided into two main parts. The first social network part consisted of two network concentric circles (see [Figure 1](#)) in which students were asked to write the names of the fellow students who considered their friends and those they wanted to work with during a group work activity. Students were asked to write the names of their closest friends within the inner circle and in a similar manner write the rest of their friends (less and least close) in the outer two circles. The advantage of this technique is that it allows for the strength to be captured, which is important in social network research. Capturing the strength of ties can show how “close” and “strong” the friendships between the students are and enables researchers to interpret their findings more fully. We asked students to write names of friends only within their year group, as the year group was the unit of analysis.

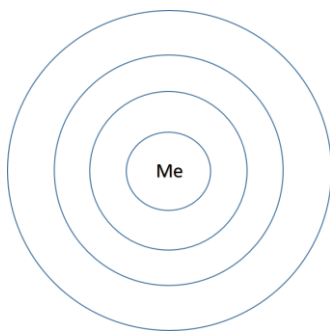


Figure 1. Friendships and group work concentric circles.

Similarly, in the second concentric circle, students were asked to choose classmates who wanted to work with in a group work activity. The second part comprised a rating scale (see [Figure 2](#)) about students' views on group work and social interaction as well as other closed questions regarding preference on type of group work, grades, and other.

Views on group work learning You are asked to tick ONE (<input type="checkbox"/>) of the six boxes in each statement that best reflects your opinion	Strongly agree		Agree		Somewhat agree		Somewhat disagree		Disagree		Strongly disagree
When given a group work task, I prefer to work with friends											
Group work promotes my academic learning											
I enjoy working in groups											

Figure 2. Rating scale.

In the third part, students were asked, in an open qualitative manner, to describe what they like most and least about group work as well as any positive or negative experiences they had when working in groups.

Research Design

The research employed a critical case study design ([Yin, 2009](#)). According to Alan [Bryman \(2012\)](#), within this design, “the researcher has a well-developed theory, and a case is chosen on the grounds that it will allow a better understanding” (p. 70) of the theory. Robert [Yin \(2009\)](#) argues that “theory development as part of the design phase is essential” (p. 35) and should take place “prior to the collection of any case study data” (p.

36). Using a case study design in educational and social science research can be very challenging, and the research team was aware of both the methodological advantages and limitations of such a design. The primary justification for using a critical case study design was that it allowed for an in-depth exploration of both the case in question (one undergraduate program of studies) and overall issue (friendships and group work dynamics).

We designed and conducted a critical single case study to explore group work dynamics and the relationship between friendship and learning networks among the students of that particular case. At the same time, we wanted to explore what students find particularly beneficial or challenging when engaging in group work and why. Our intention was not to generalize the findings but to generate an intensive exploration of the critical case in question so that we could engage in a theoretical analysis.

Critical Case Study in Action

As suggested, a critical case study design has both advantages and disadvantages in terms of methodological implementation. On one hand, this design allows for deep exploration of a particular case and provides a set of tools to study a complex phenomenon within a given context. It is also driven by a well-developed theory, and in our case, we have chosen the particular case to be able to better understand social capital theory, social network perspective, and relational agency. On the other hand, one of the main criticisms of the critical case study approach is that it cannot be generalized. In this section, we elaborate a bit more on our journey in employing such a design.

Implementation

We had to make a number of decisions when implementing a critical case study design. All decisions were made collaboratively. Being part of a multidisciplinary research team has both advantages and challenges. For example, Irene's and George's expertise on social network analysis and statistics ensured enhanced reliability of statistical analysis of the quantitative parts of the questionnaire. The PI's pedagogical background as well as qualitative research background complemented the strengths of the other members in the team. However, communicating ideas in a multidisciplinary team should be done in an open, simple, and honest manner because sometimes the terminology used can differ across disciplines.

In particular, we had to work together in making the following decisions. First, we had to decide about the theoretical framework to be adopted, as theory development is pivotal in such a design. Primarily, the study drew on concepts relevant to social capital theory and, to a lesser extent, social network theory and relational agency. Second, we had to finalize the data collection method, namely, the questionnaire. To collect rich social network data as well as quantitative and qualitative data, we designed the questionnaire with different types of questions. While devising the questions in structuring the data collection tool, we kept in mind the two research questions so as to ensure that we would collect rich data to address them. Third, we piloted the questionnaire with four students to make sure that it was clear and easy to fill out. As noted previously, a number of revisions took place as a result of the piloting. Fourth, after data had been collected, a threefold systematic analysis strategy was put in place. The

social network data were analyzed using R and Ucinet (2002) and appropriate visualizations (see [Figure 3](#)) were developed as well as social network metrics calculated. Then, quantitative data were analyzed by applying a number of statistical tests for inferential statistics. Last but not least, we employed thematic analysis to make sense of the qualitative data. Within a critical case study design, discussion and interpretation of findings are key. We thus revisited our theoretical framework which guided us in making sense of our data. This was the final step in the implementation process.

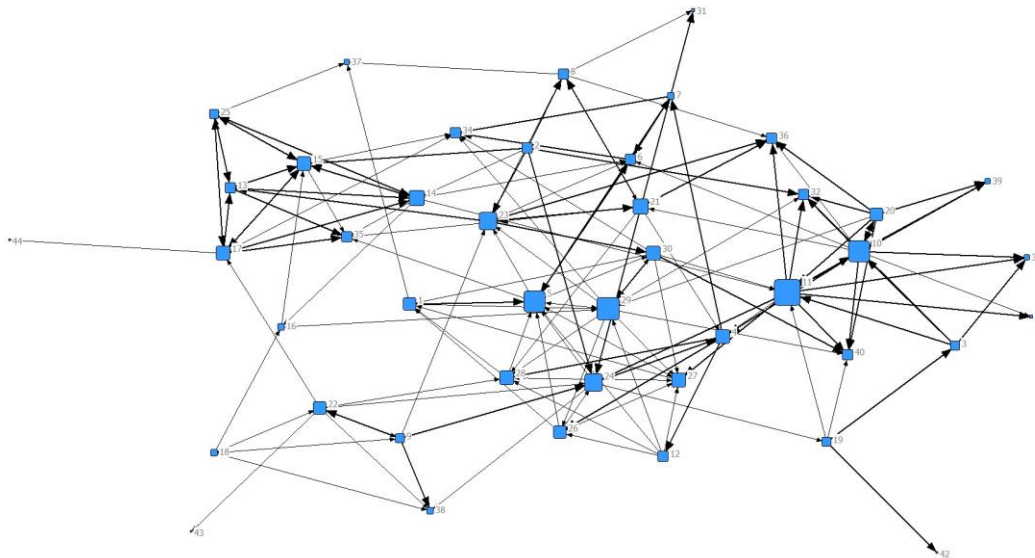


Figure 3. Example of friendships network.

Generalizability

One of the main criticisms of the critical case study design, and case studies in general, is that it cannot be generalized. However, our intention was not to generalize the findings but to generate an intensive exploration of the critical case in question so that we could engage in a deep theoretical analysis. Therefore, the findings from this study cannot be generalized due to the “situational uniqueness” of the case ([Stake, 2006](#)) but can

potentially reveal valuable insights into group work dynamics in higher education that may be relevant to other similar contexts.

Practical Lessons Learned

Undertaking this small-case study enabled us to gain experience and develop research skills with regards to implementing a critical case study design. In this section, we discuss the main practical lessons learned that we hope students and other researchers will find useful.

Good Planning and Time Management

This may seem more of a technical lesson but we firmly believe it is very important to the success of each research project. Drawing on our experience with this project, regardless of whether you work individually on a research project or as part of a team, good planning of research activities and time management are essential. When undertaking real-life research with human participants, it is common to have unforeseen delays and low response rates, and you may even end up changing your initial plan. Therefore, we encourage students and early career researchers to plan their activities and leave ample time for eventualities that cannot be predicted in advance.

Think Carefully of Your Research Design

The research design in every project is very important and should be thought through very carefully. Students and early career researchers should be fully aware of what they can and cannot do with their chosen research design. Even more importantly, they should

ensure that their design is aligned to their research problem or questions as well as their theoretical framework or paradigm. The research design of each study is extremely important as it guides the researchers through various steps, including collecting and analyzing the data, drawing interpretations of the data, and ultimately addressing the objectives and/or research questions. A rigorous research design is crucial in saving a researcher's valuable time and managing a study's resources.

Have a Clear Data Collection and Analysis Strategy

No empirical study can be accomplished without primary data collection and analysis. Data collection and analysis methods should be clearly defined, piloted, and implemented. In particular, researchers should be fully aware from Day 1 how they will analyze their data. In our case, we needed particular sets of skills as we had social network data, quantitative and qualitative data. Working with others to achieve multiple types of analyses can be key, and we encourage students and early career researchers to do so, as we did in this study.

Dissemination

A research study is truly completed when its findings are disseminated. Students in particular may think that their study's findings are not worthy of dissemination in the form of an academic publication, conference presentation, or other form. We think this should not be the case and that all researchers, including students and early career researchers, should be striving to disseminate their research. In our case, we will be presenting this work at two conferences and a journal paper will be published. Moreover,

we use social media to disseminate the findings of this study to wider non-academic audiences.

Conclusion

This case study discussed a critical case study design project. Our job as educational researchers is to understand complex social and educational phenomena by using a plethora of methods, designs, and theories. We hope that by reflecting on our experience here, we managed to provide some insights into the challenges and opportunities that a critical case study design has to offer. This is a particular design that needs a well-developed theory to guide it and the case to be studied is primarily selected on that basis. Our project has provided evidence to suggest that students with increased social capital as a result of their friendships and social interactions with peers are linked to positive group work dynamics. Furthermore, many of these students emphasized the importance and educational benefits of group work but, at the same time, pointed out challenges and practicalities that impede collaborative learning. Overall, a critical case study design has methodological advantages and limitations and should be aligned to the research questions of a study along with rigorous data collection and analysis methods.

Exercises and Discussion Questions

1. What are the strengths of the critical case study design?
2. What limitations can you identify in this small-scale study? What strategies would you suggest for addressing or mitigating these limitations?
3. What other methods of data collection could have been used within this study?

4. What is the difference between action research and a case study design? If unsure about action research, find academic sources to help you answer this question.
5. Think of your own research project as a case study design. Describe your case (unit of analysis) as well as the planning of each stage in the research process to complete your study.
6. What is the difference between a research design and a method of data collection? Discuss the importance of each.

Further Reading

Mamas, C. (2017). Exploring peer relationships, friendships and group work dynamics in higher education: Applying social network analysis. *Journal of Further and Higher Education*.

Web Resources

Socionetnography: <http://www.socionetnography.net>

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